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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,342	12/28/2001	Fergus O'Brien	27795-00025	5883

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EXAMINER

STRANGE, AARON N

ART UNIT PAPER NUMBER

2153

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,342

Applicant(s)

O'BRIEN ET AL.

Examiner

Aaron Strange

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12282001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure s 3 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim1 is objected to because of the following informalities: There appears to be a typographical error "characterised" in line 3. The Examiner recommends that the claim be amended to recite "characterized". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. With regard to claim 1, the limitation "A telecommunications/computer system" renders the claim indefinite. It is unclear what type of system the claim is intended to be. The Examiner recommends that the claim be amended to remove "telecommunications/computer" or specify one type or the other.

6. The term "relatively small" in line 4 of claim 1 is a relative term which renders the claim indefinite. The term "relatively" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how many links may be present without exceeding a "relatively small" number of links.

7. Claim 2 recites the limitation "relatively small number of connections" in line 1. There is insufficient antecedent basis for this limitation in the claim. The Examiner recommends that the claim be amended to replace connections with cross-links.

8. The term "relatively small" in line 1 of claim 2 is a relative term which renders the claim indefinite. The term "relatively" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in

the art would not be reasonably apprised of the scope of the invention. It is unclear how many connections/cross-links may be present without exceeding a "relatively small" number of them.

9. With regard to claims 2 and 6, the limitation "random links" is unclear. The term "random links" is not defined by the claim or the specification, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what makes a link a "random link".

10. The term "about" in claim 4 is a relative term which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how much the mean connectivity may vary and still be considered to be "about 1.5 to 2.0".

11. The term "about" in claim 5 is a relative term which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how much the mean connectivity may vary and still be considered to be "about 1.6".

12. With regard to claim 7, the limitation “a small world principle” renders the claim indefinite. It is unclear what applicant means by this limitation. In the specification, Applicant refers to “The ‘small world’ principle” as though it is a well-known principle (Page 5, Line 10 of the present application). It is unclear how “a small world principle” differs from “The ‘small world’ principle” referenced in the specification. It is unclear what limitation(s) Applicant intends to incorporate into claim 7 through the use of “a small world principle”.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-3 and 7 rejected under 35 U.S.C. 102(b) as being anticipated by Annapareddy et al. (US 5,602,839).

15. With regard to claim 1, Annapareddy discloses a telecommunications/computer system having a plurality of nodes (Col 5, Lines 45-47)(Fig 2, n1, n2, etc), such that the plurality of nodes are clustered in a plurality of interconnected neighborhoods (groups) (Col 5, Lines 38-40), the system characterized in that a relatively small number of cross-

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links are provided between nodes of different neighborhoods (Col 5, Lines 53-59)(Fig 2, G2.n4-G3.n3, etc).

16. With regard to claim 2, Annapareddy further discloses that the relatively small number of connections are random links (Col 5, Lines 53-59 and Fig 2).

17. With regard to claim 3, Annapareddy further discloses that the neighborhoods are fully connected (each node in a group connects to all others in the group)(Fig 2).

18. With regard to claim 7, as understood by the Examiner, Annapareddy discloses a scalable computer system formed using a small world principle. As discussed regarding claim 1, Annapareddy discloses a system in which a small number of cross-links of nodes in a network can result in small characteristic path lengths for message transfers. This interpretation of the claim is based on Page 4, Lines 22-26 of the present application.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annapareddy et al. (US 5,602,839) in view of Brewer et al. (US 5,859,975).

21. With regard to claims 4 and 5, while the system disclosed by Annapareddy shows substantial features of the claimed invention (discussed above), it fails to disclose that the mean connectivity between nodes of different neighborhoods is about 1.5 to 2.0 or, more specifically, 1.6.

Watts teaches that adjusting parameters of a small-world network results in changes in the characteristic path length. Adding a few cross-links results in a large drop in the path length (Fig 2), while substantially maintaining the clustering of the network. It would have merely been a matter of preference to a designer of the system to adjust the parameters of the network to obtain any desired mean connectivity, such as 1.6.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the number of cross links to obtain a mean connectivity of 1.6 or any mean connectivity desired by the designer of the system, based on the intended goal of the system.

22. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Annapareddy et al. (US 5,602,839) in view of Watts et al.

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23. With regard to claim 6, while the system disclosed by Annapareddy shows substantial features of the claimed invention including , a large scale computer system including a multiplicity of nodes (Col 5, Lines 45-47)(Fig 2, n1, n2, etc), , said nodes being arranged in a network with neighboring sets of nodes of the network forming neighborhoods of fully interconnected nodes (groups) (Col 5, Lines 38-40), wherein random links are provided between nodes of different neighborhoods in the network (Col 5, Lines 53-59 and Fig 2) whereby each node of the system can communicate effectively with other nodes regardless of their location in the network without full connectivity in the network (any node can reach any other node in 4 hops or less) (Fig 2). However, Annapareddy fails to disclose that each node has a plurality of interconnected processors.

Brewer discloses that the use of multiple processors in a single node of a distributed system is well-known in the art (Col 1, Lines 26-31). The use of multiple processors in a single node allows that node to process more information than it would be capable with only a single processor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a plurality of interconnected processors in each node since it would have allowed the nodes to process more information that they would be capable of processing with only a single processor.

Conclusion

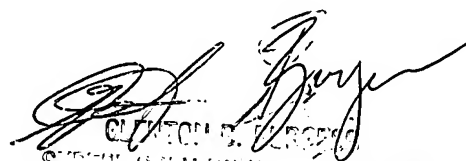
24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Strange whose telephone number is 571-272-3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS 3/3/2005


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